

measure water charged with carbonate of iron. It must, however, be remembered that after the uplifting of the Palæozoic rocks there was a vast lapse of time during the denudation by the Triassic Sea, and that much of the limestone, not now overlain by the Coal Measures and Millstone-grit, was covered by those beds for a considerable time. Further, water percolating through the Coal Measures would become highly charged with carbonic acid, given off from vegetation undergoing transition into coal, and water, so charged, would not be so long in dissolving and eroding out caverns. Mr. Etheridge had referred (*Quart. Journ. Geol. Society*, 1870, ix. 185) the origin of the Carboniferous hæmatites, in the West of England, to the infilling of faults, fissures, &c., during the denudation by the Triassic Sea; but stated that "doubtless the percolation of water through overlying strata, highly charged with oxides of iron, had been a source and mode of accumulation." Though the author was disposed to consider it possible that some of the hæmatite may have been derived from the percolation of water through the Coal Measures and Millstone-grit, yet he agreed with Mr. Etheridge that the most probable source was from the Trias rocks; not, however, during the accumulation of the strata composing that formation, but by subsequent percolation of water after consolidation of the beds. This water, on arriving at the Carboniferous Limestone, would flow down the cracks, fissures, and joints, provided there were such, but a comparatively small portion would filter through the actual rock on account of its being but slightly pervious to water. The author considered that it was owing to this fact that we generally find hæmatite where the Magnesian Conglomerate rests upon the Carboniferous Limestone. The water being unable to penetrate the rock, would naturally find an outlet at the junction of the two formations, and by the wearing away of the rock the conditions would soon be arrived at when the deposition of the iron would take place.

NOTES

THE concluding meeting of the French Association at La Rochelle was rather stormy, although not more than 203 members were present. M. Bouquet de la Grye was nominated vice-president for 1883 and president for 1884. Although very few members took part in the work of the meeting, sixteen different sections were kept in operation; this extreme division has somewhat impaired their activity. However a number of interesting papers were read and discussed. M. Debrun, Professor in the College of Pau, described a new system of central magazines for distributing electricity, a new balance for determining by mutual repulsion of currents their relative force, and a new registering electrometer. M. Marcel Deprez presented a new apparatus for determining the mechanical equivalent of heat, based mostly on Leon Foucault's experiments. He hopes to determine with a sulphurous acid calorimeter the real value of this coefficient with an approximation of $\frac{1}{1000}$ th. M. Tissandier presented again his researches on light bichromate elements; he contends that he obtains regularity of action without renewing the liquid, and without insuflation. Dr. Landowsky delivered an eloquent address against the dangers of injecting morphia, as practised nowadays by so many people. He deprecated strenuously this new method of intoxication; he calls it morphiomania or morphinism. Dr. Audrat has paid special attention to the anæmia of miners, and described it in a very interesting address. Electric lighting experiments were tried in the rooms of the Hotel de Nantes by a new system invented by M. Debrun.

ADMIRAL MOUCHEZ has been visiting the Pic du Midi to ascertain whether astronomical observations could be conducted successfully there.

THE *Standard's* New York Correspondent telegraphs that Mr. Edison's system of providing an incandescent electric light for domestic use in a given district has just been put to a practical test in that city. The district selected occupies an area of nearly a square mile. Only one source of supply is provided, and that furnishes the illuminating power for sixteen thousand lamps, the electric current passing through eighteen miles of mains. The

result is that the severest demands which the consumers have been able to make upon the new system have been satisfied. The *New York Herald* is using in its business premises an isolated plant on the same principle. No new obstacle has presented itself to the success in practice of Mr. Edison's theory; and scientific men, the Correspondent states, will be interested to know that this first practical experiment demonstrates the soundness of the inventor's application of the multiple arc system, pure and simple, as distinguished from the series system, or the combination of the arc and series systems. Throughout the entire district lighted as described, each lamp was independent of all the others.

THE electric illumination of the Vaudeville, on the Boulevard Montmartre, is a great success. The hall is crowded every night. An 11 horse-power gas machine with Faure accumulators is sufficient to illuminate every night about 250 Swan lamps.

CONSIDERABLE interest was expressed by many visitors to the Ordnance Survey Office during the British Association meeting at Southampton, that the old and costly process of reducing the 25-inch maps to 6-inch scale, and engraving them on copper-plates, of which moulds had to be obtained, and electrotyped replicas had to be made, from which the copies were printed off, has been superseded by a cheap and rapid process, by which maps can be at once reduced and published on the 6-inch scale, so soon as the 25-inch scale is completed; by a simple application of photography the lines are reduced to any desired scale, and at once transferred to an inexpensive zinc-plate. The new 6-inch map, produced by the photozincographic process, adopted by the Survey in their reproduction of the Domesday Book, will in future be issued for all the counties of England and Wales, where no 6-inch maps exist engraved from copper plates, but in those counties where a portion of the area has been published, on the latter system, the old process will be continued to secure uniformity. The new 6-inch maps are smaller in size than those formerly published, and at present are not contoured, but their lines will be added in subsequent editions. Their publication will at once permit the much-required completion of the Geological Survey of our coal-fields, which is a matter of the most urgent necessity.

WE regret to learn of the death, at Dorpat, of Dr. Kreuzwald, the publisher of old Esthonian songs and poems. He was born in 1804, and studied medicine at Dorpat. When a student he began to collect songs and tales of his country-people, and in the years 1840 to 1850 he published a series of remarkable articles on Esthonian antiquities, mythology, traditions, and tales. His principal work was the publication, with annotations, of the whole of the different parts of the great Esthonian poem, "Kalewinoey," remarkable by its fine poetical feeling for nature and analysis of human feelings. It was translated into all the chief European languages. In 1877 Dr. Kreuzwald was compelled to abandon his medical practice, and died in poverty at Dorpat.

THE *Official Messenger* of St. Petersburg announces, on September 1, that "by order of the Emperor the admission of new pupils to the course of medical training for women, at the Nicholas Military Hospital, will be discontinued after the present term. The students will be allowed to conclude their course, after which the clinical instruction for women at the hospital will be abolished." The Medical Academy for Women, the courses of which were quite equal to those of the old Universities, had 367 students. Since 1877, when the first lady students passed the examinations, 281 ladies have completed the whole course of studies, and 152 had passed the examinations of M.D.; 105 of them were in service at universities and in public hospitals.

NEWS received from the Finnish Circumpolar observation party states that the members arrived at Sodankylä in the north

of Finland early in August, and that observations commenced there on the 15th ult. as intended.

M. RABOT, a member of the French Geographical Society, has sailed from Tromsø to Spitzbergen for a private exploration. This is the first time that a French ship has been in these seas for exploring purposes since *La Siloisse* was sent during the reign of Louis Philippe, under the command of Blotseville. This ship was lost, and nothing was ever heard either of it or any of the crew.

WE notice a good book of travel in Servia, published by Franz Scherer under the title, "Bilder aus dem Serbischen Volks- und Familien-leben."

THERE has just been published an elaborate work on the present state of silk-worm culture in Southern Russia and Trans-Caucasia, giving an accurate description of the whole of the culture, and a complete bibliography of works on the subject that have appeared since 1703. It is published in connection with the Moscow Exhibition, by the Moscow Agricultural Society, with many plates of drawings.

WE have received part 3, vol. iii. of the *Transactions* of the Norfolk and Norwich Naturalists' Society. We observe from the presidential address that the strength of the Society continues to increase, the present number of members being 234 as compared with 204 in the previous year; the financial position of the Society is also satisfactory. Amongst the published papers is a biographical notice of the late Dr. S. P. Woodward, by his son, Mr. H. B. Woodward, F.G.S. This memoir forms one of a series which the Society is publishing of distinguished naturalists connected with the county of Norfolk. A paper on the extensive destruction of the Lombardy poplar, contributed by Mr. H. D. Geldack, has also more than local interest. Mr. Stephenson's paper on the plumage of the waxwing contains some valuable additions to the history of this beautiful and singular bird. Additions to the fauna of the county are made in the Mammalia by Mr. Southwell, Hymenoptera by Mr. Bridgman, the Tortricidæ by Lord Walsingham, and to the Flora by Mr. A. W. Bennett, F.L.S. There are also papers on the noteworthy springs and spas of Norfolk by Mr. H. B. Woodward, F.G.S., the herring fishery of 1881, and some interesting notes on the habits of the nightingale, extracted from a letter written to the Rev. R. Sheppard in 1819. In addition there are ornithological and entomological notes from Mr. F. D. Power, Mr. Frank Norgate, and Mr. Stevenson.

MESSRS. PIPER AND CARTER have issued a new edition (the fifth) of Capt. Abney's "Instruction in Photography." The whole of the work has been revised, sixty pages of new matter added, and the latest details as to the gelatine emulsion process given.

WE have received from Mr. Stanford other two war-maps. One of Lower Egypt, on the scale of 4 miles to the inch is extremely minute in detail, and will be found of great service in following operations. The other contains a map of the Nile Delta, a plan of Cairo and its environs, the towns and ports of Suez, Ismailia, Port Said, and a general map showing the Suez Canal and Cape routes to India.

THE English Government having sent to Egypt three of the Woolwich balloons, we may remind our readers that balloons were taken out by the French army in 1794. But it was impossible for Buonaparte to use them, the furnace for the preparation of pure hydrogen having been lost when the French fleet was annihilated by Nelson in Aboukir Bay. Conte, the engineer of the aéronauts, was created the head of Cairo arsenal, and Coutelle, their captain, was sent on a scientific mission to Upper Egypt. The diameter of these French balloons being small (10

metres), their capacity was only 520 cubic metres; they were of silk, and always inflated with pure hydrogen, which was prepared by the action of steam on iron filings.

AN exhibition of considerable interest has been opened at the Royal Aquarium, consisting of a Javanese "Gamelon" or orchestra, of fourteen male and four female performers. There is a variety of percussion instruments and one stringed instrument stated to be a violin of the Chinese type. The females go through one of their native dances, if their peculiar postures and movement of limbs and head may be regarded as a dance. From an ethnological point of view, the exhibition is well worth a visit by those who have not had an opportunity of seeing the Javanese at home. With considerable general likeness, there is really great diversity of feature, one or two of the faces being almost European in type.

THE Swedish Government has decided not to prohibit vivisection in that country, in spite of the appeal made to them by the Diet in reference hereto last session.

ABOUT forty male pupils of the Parisian public schools who have taken honours have been sent on a visit to London. The Société Nationale Française have made arrangements for their board and guidance. The same number of laureates were sent to Central France.

TWO very large and splendid catseyes were exhibited at the *conversazione* of the British Association at Southampton by Mr. James R. Gregory. These were said to be the largest in the world; one of them measured 3 inches in length and $1\frac{1}{2}$ in. in breadth, and weighed 359 carats, or nearly $2\frac{1}{2}$ ounces; the other is somewhat smaller, weighing 308 carats. They are both remarkably fine stones.

THE additions to the Zoological Society's Gardens during the past week include two Southern River Hogs (*Potamocheilus africanus* ♂ ♀) from South Africa, presented by Col. J. H. Bowker and Mr. John Dunn; a Hairy-footed Jerboa (*Dipus hirtipes*) from Jeddah, presented by Mr. Lionel Adams; a Himalayan Bear (*Ursus tibetanus* ♀) from North India, presented by Mr. E. J. Coope; an Indian Chevrotain (*Tragulus meminna*) from India, presented by the Hon. John Stoddart; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mrs. Crawford; two Crimson-winged Waxbills (*Pytelia phainoptera*) from West Africa, presented by Mr. Albert Krehl; a Four-coloured Shrike (*Laniarius quadricolor*) from South Africa, presented by Col. J. H. Bowker; a Red Brocket (*Cariacus rufus* ♀) from Brazil, a Grey Squirrel (*Sciurus cinereus* var. *nigra*) from North America, seven Madagascar Boas (*Pelophilus madagascariensis*) from Madagascar, deposited; a Yellow Baboon (*Cynocephalus babouin*) from West Africa, four White-headed Bullfinch-Larks (*Pyrrhuloxia verticalis*) from South Africa, two Yellow Sparrows (*Passer luteus*) from East Africa, two Scarlet Ibis (*Endocimus ruber*) from Para, two Crested Colins (*Euphychortyx cristatus*), eleven Variable Leaf Frogs (*Phyllomedusa dacnicolor*) from Mexico, purchased.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

UNIVERSITY College, Bristol, is making laudable efforts to provide a complete curriculum for the important district of which it is the centre. Like the similar colleges at Manchester, Leeds, Birmingham, &c., the lectures comprise all the branches of a liberal and scientific education. The erection of new buildings, which will be completed before the close of the current year, will give increased facilities for the study of science. The Chemical Department now contains accommodation for nearly fifty students, and is, we believe, equipped with the latest improvements for teaching which are in use in this country or on the Continent; lectures are delivered on pure chemistry as well